

## CLAIMS

1           1.     A polishing assembly for use in a chemical-mechanical polishing apparatus,  
2 comprising; a polishing pad having at least a first aperture therethrough;  
3           a platen for supporting said polishing pad, said platen having at least a second aperture  
4 therethrough at least a portion of which is larger than said first aperture; and  
5           a substantially transparent plug including at least a first section having a first dimension  
6 and at least a second section having a second dimension larger than said first dimension, said  
7 first section for positioning substantially within said first aperture and said second section for  
8 positioning substantially within said second aperture.

2.     A polishing assembly according to Claim 1 wherein said second aperture has an internally threaded portion.

3.     A polishing assembly according to Claim 2 wherein said second section has an externally threaded portion that is received by said internally threaded portion.

4.     A polishing assembly according to Claim 2 further comprising a retaining member for securing said plug is said first and second apertures.

5.     A polishing assembly according to Claim 4 wherein said retaining member is externally threaded and received by said internally threaded portion.

6.     A polishing assembly according to Claim 1 wherein said second aperture includes a first surface which is substantially smooth.

7.     A polishing assembly according to Claim 6 wherein said second aperture includes a second internally threaded surface.

8.     A polishing assembly according to Claim 6 wherein said first aperture is substantially cylindrical.

9.     A polishing assembly according to Claim 8 wherein said second aperture is

substantially cylindrical.

10. A polishing assembly according to Claim 6 wherein said second aperture includes a substantially conical section.

11. A polishing assembly according to Claim 1 wherein said plug is made of a polymeric material.

12. A polishing assembly according to Claim 11 wherein said plug is insertable through said platen into said polishing pad.

13. A polishing assembly according to Claim 12 wherein said plug is press-fit through said platen into said polishing pad.

14. A polishing assembly according to Claim 5 wherein said retaining member is hollow to provide an optical path to said optical plug.

15. A polishing assembly for use in a chemical-mechanical polishing apparatus, comprising;

a polishing pad having at least a first aperture therethrough;  
a platen for supporting said polishing pad, said platen having at least a second aperture therethrough at least a portion of which is larger than said first aperture; and  
a removable, substantially transparent polymeric plug including at least a first section having a first dimension and at least a second section having a second dimension larger than said first dimension, said first section for positioning substantially within said first aperture and said second section for positioning substantially within said second aperture.

16. A polishing assembly according to Claim 15 wherein said plug is press-fit into said first and second apertures.

17. A polishing assembly according to Claim 15 wherein said second has an internally threaded section.

18. A polishing assembly according to Claim 17 wherein said second section has an externally threaded portion that is received by said internally thread portion.

19. A polishing assembly according to Claim 17 further comprising a retaining member for securing said plug in said first and second apertures.

20. A polishing assembly according to Claim 19 wherein said retaining member is externally threaded and received by said internally threaded portion.

21. A polishing assembly according to Claim 15 wherein said second aperture includes a first surface which is substantially smooth.

22. A polishing assembly according to Claim 21 wherein said second aperture includes a second internally threaded surface.

23. A polishing assembly according to Claim 21 wherein said first aperture is substantially cylindrical.

24. A polishing assembly according to Claim 23 wherein said second aperture is substantially cylindrical.

25. A polishing assembly according to Claim 21 wherein said second aperture includes a substantially conical section.

26. A polishing assembly according to Claim 20 wherein said retaining member is hollow to provide an optical path to said optical plug.

27. An optical plug for providing an optical path through a platen/polishing pad of a chemical-mechanical polishing apparatus, said optical plug comprising:

- a first section having a first dimension for positioning in said polishing pad; and
- a second section having a second larger dimension for positioning in said platen.

28. An optical plug according to Claim 27 wherein said optical plug is made of a polymeric material.

29. An optical plug according to Claim 28 wherein said optical plug is capable of being press-fit through said platen into said polishing pad.

30. An optical plug according to Claim 29 wherein said first section is substantially cylindrical.

31. An optical plug according to Claim 30 wherein said second section is substantially cylindrical.

32. An optical plug according to Claim 31 wherein said second section includes an externally threaded portion.

33. An optical plug according to Claim 29 wherein said second section includes a conical surface.